DISCUSSION OF THE AMENDMENT

Due to the length of the specification herein, Applicants will cite to the paragraph number of the published patent application (PG Pub) of the present application, i.e., US 2007/0185223, when discussing the application description, both in this section and in the Remarks section, *infra*, rather than to page and line of the specification as filed.

Claims 1 and 6 have been amended, by incorporating the subject matter of Claim 4 therein, and a blowing agent comprising water, as supported in the specification at paragraph [0036]. Claim 9 has been amended to depend on Claim 1.

New Claims 20 and 21 have been added, which limits the catalyst, as recited.

No new matter is believed to have been added by the above amendment. Claims 1-3, 5-7 and 9-21 are now pending in the application.

REMARKS

The rejection of Claims 1-3, 5-7, 10-11, and 15-16 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over, US 5,770,674 (Cageao et al) and further in view of US 4,584,362 (Leckhart et al), is respectfully traversed.

All the claims now contain the limitations of Claim 4, not subject to this rejection. Accordingly, it is respectfully requested that the rejection be withdrawn.

The rejection of Claims 1, 2, 4-7, 9-16 and 17-19 under 35 U.S.C. § 103(a) as unpatentable over US 6,331,577 (Volkert et al) and further in view of US 2006/0180274 (Burckhardt et al), is respectfully traversed.

Claim 1 is drawn to shoe sole comprising a tin-free integral polyurethane foam that has a density of from 100 to 800 g/l, a shore A hardness of 50 to 80, an elongation of 220 to 700% and a tear propagation resistance of 8 to 38 N/mm, and is obtained by reacting a) at least one polyisocyanate with b) at least one compound having isocyanate-reactive hydrogen atoms in the presence of as a catalyst, c1) at least one bismuth carboxylate in an amount of from 0.2 to 2% by weight, based on the total weight of the component b) and c2) at least one tertiary amine, and d) a blowing agent comprising water.

Claim 6 is of the same scope but is drawn to a process.

Volkert et al disclose shoe soles as an applicable use for flexible integral polyurethane foams (column 1, lines 6-11). Particularly, Volkert et al discloses elastic polyurethane moldings produced by reacting modified organic polyisocyanates with at least one relatively high molecular weight compound containing at least two reactive hydrogen atoms and, if desired, low molecular weight chain extenders in the presence of blowing agents, catalysts and, if desired, customary auxiliaries and/or additives in a closed mold with compaction, wherein the modified organic polyisocyanate used is at least one reaction product of pure MDI and at least one polyether alcohol (polyoxyalkylene polyol), the modified organic

polyisocyanate having an NCO content of <15% by weight (Abstract), which urethane foams do not shrink even at densities of the moldings below 400 g/l (column 2, lines 24-28). Volkert et al discloses as catalysts various tin compounds, usually used in combination with strongly basic amines (column 5, lines 28-35). In Examples 4-9 therein, which are described as integral foams of low density (column 8, line 43), properties such as density, elongation at break and shore A hardness are listed in Table 3, wherein only Example 4 has a shore hardness within the terms of the present claims, i.e., 52. Various integral foams are also exemplified in Examples 11-15 (with Example 15 being comparative), the various physical properties disclosed in Table 4 therein.

Acknowledging that Volkert et al does not disclose the use of a bismuth carboxylate catalyst, the Examiner relies on Burckhardt et al.

Burckhardt et al discloses polyurethane compositions comprising the combination of a tin compound and a tertiary amine as catalysts are known, but there has been a desire to replace tin catalysts with alternative catalysts due to the toxicity thereof [0002]. Bismuth catalysts, such as carboxylates, have a far lower acute toxicity than tin catalysts, and have thus been used as replacements, but their catalytic activity in respect of the isocyanate/water reaction is much lower than that of tin catalysts, and storage stability is problematical, even in the absence of water [0003]. Burckhardt et al addresses this problem by combining at least one bismuth compound (such as bismuth neodecanoate [0022]) and at least one aromatic nitrogen compound [0017]; the only such aromatic amines disclosed have a quinoline structure [0018]. The bismuth and quinoline compounds form a coordination compound, preferably between bismuth and 8-hydroxyquinoline or between bismuth and tetraethylene glycol bis(8-quinolyl)ether [0045]. Burckhardt et al discloses further that other catalysts may be added, such as the combination of a tin compound and a tertiary amine [0034].

The Examiner holds that it would have been obvious to incorporate the bismuth catalyst of Burckhardt et al in the composition of Volkert et al, relying on the disclosure in Burckhardt et al regarding toxicity of tin catalysts.

In reply, Burckhardt et al teach against the use of a bismuth catalyst in situations where an isocyanate/water reaction is intended to be carried out, as in the presently-claimed invention. Indeed, in the production of an integral foam, carbon dioxide formed from the isocyanate/water reaction acts to help form the foam. Thus, one of ordinary skill in the art would not have substituted the bismuth catalyst of Burckhardt et al for the tin catalyst of Volkert et al where water is a reactant.

For all the above reasons, it is respectfully requested that the rejection be withdrawn.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. The Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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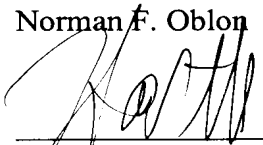

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